

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

EXECUTIVE OFFICER'S REPORT

July 9, 2009

PART B SIGNIFICANT REGIONAL WATER QUALITY ISSUES

4. Update on Surface Water Ambient Monitoring Program (SWAMP) and Biological Objectives (*Cynthia Gorham-Test and David Gibson*) (*Attachment B-4*)

Vision for Bio-Objectives for the Short Term: As a result of a joint effort initiated in January 2009 by the San Diego and the Lahontan Regional Boards, State Board, California Department of Fish and Game, and US EPA, SWAMP is beginning the task of developing biological-objectives (also known as bio-criteria) as a necessary step to augment water quality objectives and ensure compliance with the Clean Water Act goals set forth in section 101(a) "to restore and maintain the chemical, physical, and biological integrity of the nation's waters". Development of biological objectives in each of the States is a priority for US EPA Region 9.

Biological objectives are the narrative or numeric expressions describing the qualities that must be present to support desired conditions in a waterbody; they serve as the standard against which monitoring results are compared. The purpose of attaining and maintaining the biological objectives are to protect the "health", ecological integrity, and beneficial uses of a waterbody. Ecological integrity refers to the chemical, physical, and biological conditions that are capable of supporting and maintaining a balanced and adaptive community of organisms including a species composition and diversity that is comparable to what would be found under natural conditions in the region. Currently, none of the nine Region Basin Plans include biological objectives.

The development of bio-criteria will be divided into short term (the next 2-3 years) and long term (> 3 years) development.

Short term: SWAMP will focus on improving basic major technical elements that include some indicator metrics improving our reference condition program, data management strategies, and protocols for quality assurance (QA).

- SWAMP will develop a mechanism to evaluate bio-criteria with different degrees of development using a "Tiered Aquatic Life Objective Approach" (TALO). The TALO approach is based on the idea of comparing a continuum of a stressor to a biological community condition. As stress increases, including effects from pollutant concentrations, the ecological integrity of biological community may decrease. The TALO approach is based upon the effects of the stressor(s) being grouped into one of three tiers: a "reference tier" representing good conditions, an "impacted tier" representing poor

conditions, and a tier that is located between the reference and impacted tiers. The graph in Attachment B-4, illustrates the anticipated relationship between the tiers.

- SWAMP also must have a better understanding of what the healthy or ecological conditions are for waterbodies in the various ecoregions within our state. Therefore, efforts will be taken to improve that portion of the program through additional monitoring and intensive data analysis.

Long term: SWAMP will develop tools for fine-tuning the TALU/ TALO process, and also will integrate use of ecological condition indicators as performance measures throughout State Board programs. The Tiered Aquatic Life Use (TALU) approach is similar to the TALO approach in many ways. TALU still addresses biological community condition, but focuses on the aquatic life beneficial use categories rather than on specific stressors.

Algae Bioassessment Standard Operating Procedure (SOP): In the past year, tremendous progress has been made in including algae in a more effective bioassessment program for surface water resources in California. A technical document was released on May 2, 2009 for Standard Operating Procedures (SOP) for collecting and field-processing benthic stream algae for the California State Water Resources Control Board (SWRCB) SWAMP Program. The Algae Bioassessment SOP (Algae SOP) provides instructions for (1) collection of samples for taxonomic identification of benthic diatoms and soft-bodied algae, (2) collection of samples for determination of algal biomass and (3) estimation of percent algal cover. The Algae SOP was reviewed and approved by the SWAMP Roundtable members at their June 10, 2009 meeting. The Algae SOP was written by Dr. Elizabeth Fetscher of the Southern California Coastal Water Research Partnership (SCCWRP), Dr. Lilian Busse of the San Diego Regional Board, and Dr. Pete Ode of the CA Department of Fish and Game, Aquatic Bioassessment Laboratory.

During 2008 and 2009, sampling benthic stream algae was included in the following core SWAMP monitoring programs: (1) Perennial Streams Assessment (PSA), (2) Reference Site program, and (3) Regional Board programs. SWAMP funds were used to develop the Algae SOP for field sampling and establish a freshwater algae taxonomy group to standardize algae taxonomy for the state. Future SWAMP related projects include the continuation of the algae taxonomy group, training on the use of the recently developed Algae SOP, and the development of an algae Quality Assurance Project Plan (QAPP).